Northern

DTW212H960 / DTW212HIR960

OUTDOOR 960H/700 LINE CAMERAS

USER GUIDE:

DTW212H960 – Day/Night Model
DTW212HIR960 – IR Model

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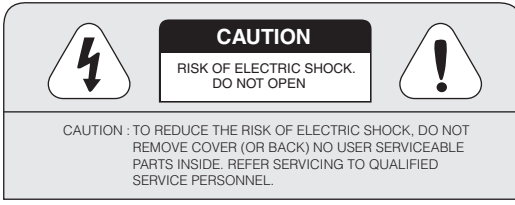
Rev. 062413

▸ Table of Contents

- Precautions
- Features
- What's Included & Parts Identification
- Dimensions
- Installation
- Assembly
- Connection
- OSD Menu setup
- Trouble shooting

Safety information ◂


CAUTION
RISK OF ELECTRIC SHOCK.
DO NOT OPEN
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT
REMOVE COVER (OR BACK) NO USER SERVICEABLE
PARTS INSIDE. REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.

This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.

This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Regulatory Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions :

(1)This device may not cause harmful interference, and

(2)This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

If the product is to be put out of operation definitively, take it to a local recycling plant for a disposal which is not harmful to the environment.

▶ Precautions

- Choose an ideal location for the camera, location must be protected against strong vibration.
- Be careful not to scratch the camera unit, especially lens or dome cover.
- Use the camera within temperature range(-14°F ~ 122°F).
- Handle with care. Dropping it can cause serious damage.
- Do not point into direct sunlight.
- Use an appropriate power supply, 12VDC or 24VAC.

Features ◄

- 1/3" SONY Super HAD CCDII(960H)
- 700 Line Resolution
- Advanced D-WDR, 3D-DNR
- Day & Night function
- Full OSD with Multi-language
- Multi function : Sense up(1024X), Motion Detection, Privacy Mask, Freeze, Flip(H/V/R), E-Zoom
- 82' range visible in total darkness with 24pcs of IR LEDs. (Indoor)
- 3-Axis Bracket for 3D(Pan/Tilt/Roll) rotation
- Extra video connector for easy installation

▸ What's Included & Parts Identified

What's Included

(1) CAMERA

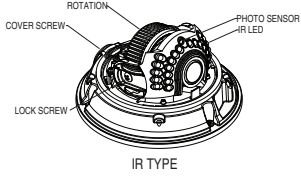
(1) WHITE HOUSING

(1) VIDEO TEST CONNECTOR

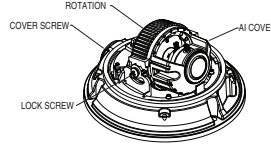
(1) MOUNTING HARDWARE PACKAGE

(1) USER GUIDE

Parts Identified

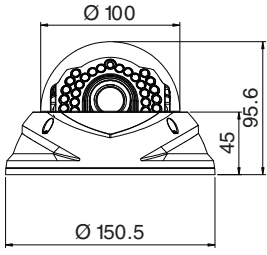


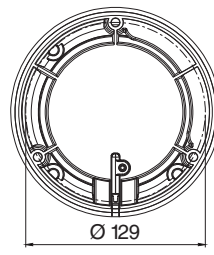
IR TYPE



NORMAL TYPE (AI LENS)

Dimensions ◄





Structure specification

MECHANICAL	
Dimension	Ø150.5 X 96.6(H)mm
Weight	Approx. 800g
ENVIRONMENT	
Construction	Aluminum
Ingress Protection	IP68
Operating Temp	-14°F ~ 122°F (-45°C ~ 50°C)
Humidity	0% to 90%
ELECTRICAL (Power Consumption)	
Power Supply	Regulated 12V DC ±10% 12V DC / 24V AC Dual voltage
Current Consumption	Max. 600mA (at 12V DC): LED ON Max. 150mA (at 12V DC) LED OFF
Heater	Yes
CERTIFICATION	
CE, FCC, ROHS	Yes

▶ Installation

HOW TO INSTALL

1. Camera installation

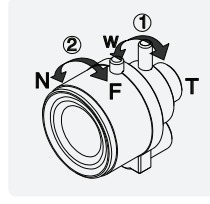
(1) Fix the camera set with the supplied screws on ceiling or wall mount.
If you don't use supplied screws, the camera may fall off.

(2) Please refer to '4. Camera angle adjustment' regarding adjust camera angle.

(3) Lens adjustment

① By turning the "Tele-Wide" knob, you can access a range of focal lengths within specified limits.

② Then, by turning the "Near-Far" knob, you can set the focus toward the desired object.

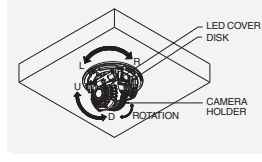


* For LED model, the IR LED bank is hinged, and can be moved back to allow access to lens adjustment. After lens adjustment is made, be sure to move IR LED bank back to original position.

4. Camera angle adjustment :

(1) Pan adjustment : Grasp the disk of camera and then adjust direction to the right or left (-180˚~ 180˚)

(2) Tilt adjustment : Grasp the LED cover of camera and then adjust direction up or down (6˚~ 90˚)



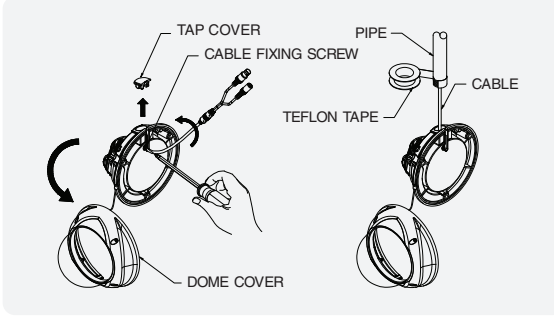
<Caution>
Do not force past adjustment range or damage may occur.

(3) Roll adjustment : Grasp the camera holder and then rotate (-178˚~178˚)

(4) Re-assemble the camera.

1. Pipe Application

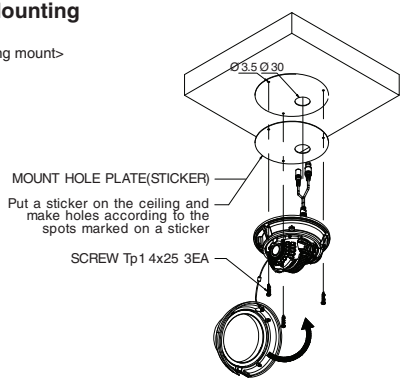
(1) Remove the screw for fixing a cable on the bottom of the base.
(2) Open the DOME COVER.
(3) Remove the TAP COVER and place the cables there.
(4) After distributing cables, use TEFLON tape on pipe threads.
(5) Combine the pipe to the base.



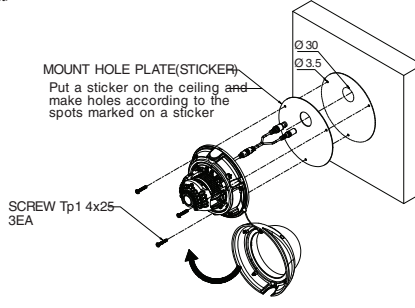
▶ Assembly/Mounting

Mounting

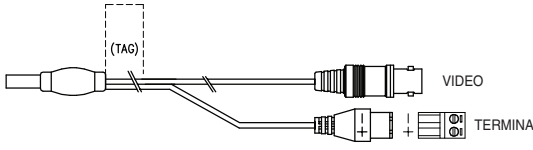
<Ceiling mount>


Ø3.5 Ø30
MOUNT HOLE PLATE(STICKER)
Put a sticker on the ceiling and make holes according to the spots marked on a sticker
SCREW Tp1 4x25 3EA

<Wall mount>


Ø30
Ø3.5
MOUNT HOLE PLATE(STICKER)
Put a sticker on the ceiling and make holes according to the spots marked on a sticker
SCREW Tp1 4x25 3EA

AC 24V / DC 12V

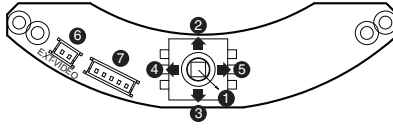


▶ OSD Menu Set up

Main Set up

LENS	• MANUAL		• DC	• VIDEO
EXPOSURE	• SHUTTER		• AGC	• SENSE-UP
BACKLIGHT	• OFF	• DWDR	• BLC	• HSBLC
WHITE BAL	• ATW	• AWB	• AWC	• MANUAL
DAY&NIGHT	• COLOR	• AUTO	• B/W	
SMART 3DNR	• VALUE	• SMART NR	• SMART LEVEL	• SENSITIVITY
F-DNR	• MANUAL		• AUTO	• OFF
FUNCTION	• MOTION • IMAGE ADJ		• PRIVACY • COMM ADJ	• D-EFFECT • SYNC • LANGUAGE
EXIT	• SAVE		• RESET	• CANCEL

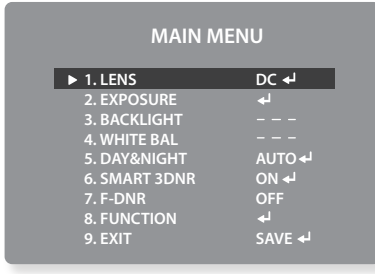
Function Setting



①ET : Used to access the menu and confirm selection.
②UP, ③DOWN : Used to move the cursor to up or down.
④LEFT, ⑤RIGHT : Used to move the cursor to left or right and change the value.
⑥EXT-VIDEO : Extra video output terminal for installation.
⑦EBUG PORT : It is used for upgrading the product function and after-sales services.

OSD Menu Control and Set up

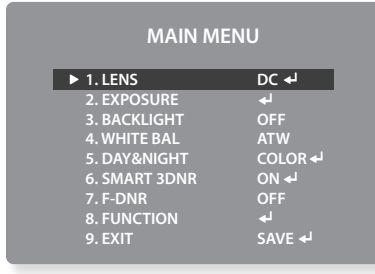
The on-screen menu is operated with the control lever on the PCB.
To call the on-screen menu, press the control lever straight downward.
The main menu is inserted:



Select the menu item by tilting the control lever in direction ↑or ↓.
Change an adjustment by tilting the control lever in direction ← or →.
If " ↵ " is indicated beside menu item or an adjusting option, It is possible to call a submenu for further adjustments by pressing down on the control lever.
To return from a submenu to the prior menu level, select the menu item RETURN and confirm by pressing down the control lever. Via the submenu item RETURN, the menu is completely exited.
Exit the main menu via the menu item EXIT.

▶ Menu Set up

LENS (MANUAL, DC, VIDEO)



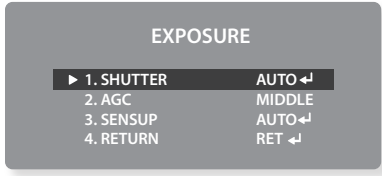
MANUAL : Select when using a Manual Iris lens or Fixed-Focal lens.
BRIGHTNESS : Brightness of the picture. (1~100)
RETURN > RET : Shift to previous menu.
(Used in all menu, refer all)
RETURN > SAVE&END : Adjust, save and out of menu.
(Used in all menu, refer all)

DC : Select when use of DC Auto-Iris lens
DC is standard mode.
BRIGHTNESS : Brightness of the picture. (1~100)
IRIS SPEED : Adjust speed of lens' iris. (1~5)

VIDEO : Select automatic lens' iris. (VIDEO TYPE)

EXPOSURE

Function of adjusting shutter speed and AGC.



1-1. SHUTTER

AUTO : Automatic adaptation with change of amount of light (1/60 ~ 1/100000(S))

a. AUTO SHUT. MIN : 1/60(1/50) Fixed

b. AUTO SHUT. MAX : FLK,1/250,1/500,1/1000,1/2000,1/5000,1/10000, 1/20000,1/50000,1/10000

1-2. FLK : Set to FLICKERLESS mode

1-3. MANUAL : Adjust shutter manually. .(1/60(1/50)~ 1/100,000, 2X ~ X1024)

1-4. 1/60(1/50) : Set to 1/60(1/50)

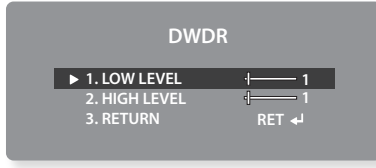
2. AGC (OFF, LOW, MIDDLE, HIGH) : If the illumination is poor, the video signal is amplified accordingly by the automatic gain control (AGC). The value AGC in the submenu EXPOSURE defines the control range. A high amplification increases the picture brightness; however, a higher picture noise is created as well.
OFF: Deactivates the AGC function
LOW, MIDDLE, HIGH : Adjust AGC level

3. SENSE UP (AUTO, OFF) : If only a very poor illumination is available, the light sensitivity of the camera can be increased. The shutter time is extended so that the exposure time covers several pictures. In the line SENSE UP it is possible to select if the sensitivity should be increased (ON) or not (OFF). If On has been selected, adjust the factor for the exposure time (X2, ….X1024)

▶ Menu Set up

BACKLIGHT

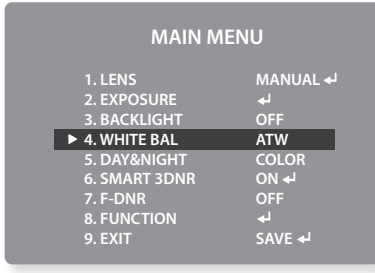
Strong/large sources of light coming from behind the main subject (such as a person indoors that is in front of a window) cause the light meter to underexpose for the main subject



1. OFF : Deactivates the BACKLIGHT function
2. DWDR : Helps to eliminate over & underexposed areas of the picture.
2-1. LOW LEVEL (0~15): In WDR mode, AGC in low
2-2. HIGH LEVEL (0~15) : In WDR mode, AGC in high.
2-3. RETURN
3. BLC : Back Light Compensation / User controllable mode, shown the subject clear in anywhere.
3-1. VALUE (LOW, MIDDLE, HIGH) : Adjust the brightness.
3-2. AREA : Set up the area of using BLC
   a. SINGLE : Set up the first BLC area. (area & size adjustable)
   b. DOUBLE : Set up the second BLC area. (area & size adjustable)
3-3. DEFAULT : Reset as default
4. HSBLC : High Light Compensation / Masking the highlight in the image to distinguish the subject
4-1. GAIN (0~100) : The higher GAIN level is, the masking is covered only highlights. The lower the GAIN level is, the masking is covered on low illuminations. So, the lower GAIN level is, the more masking areas covered.
4-2. MODE (ALL DAY, NIGHT ONLY) : Select one
4-3. MASK-LEVEL (0~100) : Adjust the brightness on the selected area.
4-4. DEFAULT : Reset as default
4-5. M.SKIP AREA : Adjust the selected area not to get masked by HSBLC. (area, size, on, off)

WHITE BAL

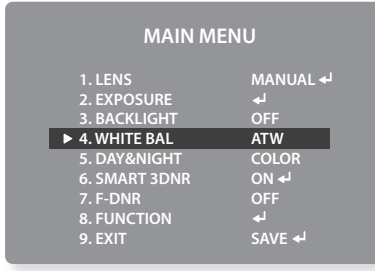
Function of adjusting shutter speed and AGC.



ATW : Select this when the color temperature is between 2,500°K and 9,500°K
AWB : Select when the color temperature is between 1,800K°~10,500K°
AWC->SET : To find the optimal luminance level for the current environment, point the camera towards a sheet of white paper and press the set button. If the environment changed, readjust it.
MANUAL : Adjust the proportion for RED and BLUE

▶ Menu Set up

DAY & NIGHT - Switching of day operation/ night operation



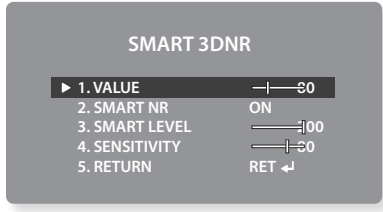
COLOR : color mode always on

AUTO : Automatic switching between day operation (color mode) and night operation (black and-white mode) depending on the ambient brightness
DELAY (0~15) : Adjust the condition time in order to switch day and night.
D->N(AGC), N->D(AGC) : By AGC, adjust the switching point between day and night. (0~255)
D->N(CDS), N->D(CDS) : By CDS, adjust the switching point between day and night. (0~255)

B/W : black-and-white mode always on
BURST (ON/OFF) : Turn on or off BURST signal.
IR SMART (ON/ OFF) : When IR LED is turned on in B/W, the objects can be clearly identified due to the function that decreases screen saturation of objects within a short distance.
a. VALUE (0~100) : Adjust IR SMART level
b. AREA : Adjust the position and size for IR SMART
c. IR DWDR : Adjust the brightness by applying Digital Wide Dynamic Range when IR SMART is on.
IR LED (ON/OFF) : Turn on or off IR LED at night mode.

SMART 3DNR (ON/OFF)

When motion is detected, reduces the background noise, dragging and stretching of image in a low luminance environment.

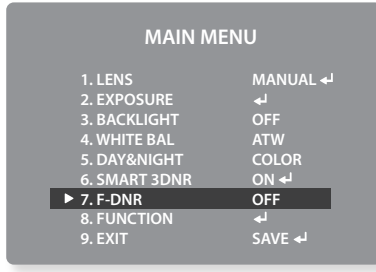


VALUE (1~200) : Adjust level of this function
SMART NR (ON/OFF) : Set the function to “ON” or “OFF”
SMART LEVEL (1~200) : Adjust the level of this function
SENSITIVITY (0~100) : Adjust the sense of this function

▶ Menu Set up

F-DNR

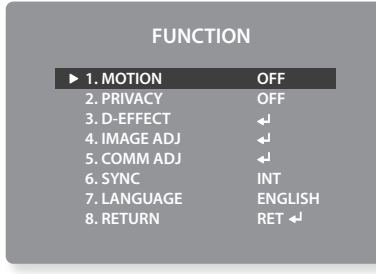
This function improves the screen view when you have a foggy, dusty or low light environment.



MANUAL : Adjust F-DNR manually.
LEVEL (0~31) : Adjust F-DNR level.
COLOR GAIN (0~10) : Adjust COLOR GAIN level
EDGE GAIN (0~10) : Adjust EDGE GAIN level
GAMMA (0.05~1.00) : Adjust GAMMA
AUTO : Automatic adaption with change of fogginess.
DETECT LEVEL (0~5) : Adjust the level of detect.

FUNCTION

Multiple functions can be selected.



1. MOTION (ON/OFF) : (Mostly for used for environments where movement is rare. If movement is noticed in camera, the alarm system displays on the monitor thru text and/or outlines (as user selected).

1-1. AREA : Select for 4 areas

1-2. AREA DISPLAY : Select the position and size

1-3. VALUE : Select the level of sensitivity of subject (0~100)

1-4. MOTION VIEW : Display outlines an object or not (ON/OFF)

2. PRIVACY : To conceal picture zones which are not to be monitored, 8 independently adjustable polygons are available which may be combined as well. To enable the masking, lightly press the control lever with the adjustment ON. Selected. The following submenu is inserted:

2-1. AREA (1~8) : 8 areas can be selected.

2-2. AREA DISPLAY : Adjust size, location and use of matter on selected area.

2-3. COLOR : Select the colors on selected areas.

2-4. TRANSPAR (0~3) : Select the transparency on selected areas.

▶ Menu Set up

FUNCTION

3. D-EFFECT : Additional digital function activated.
3-1. D-ZOOM (ON/OFF) : X1~X32 DIGITAL ZOOM can be adjustable.
    a. RANGE (X1~X32) : Adjust range of digital zoom
    b. PAN : Adjust left and right location on the magnified image
    c. TILT : Adjust up and down location on the magnified image
3-2. SMART D-ZOOM (ON/OFF) : When motion detect, zoom in the area.
    a. RANGE (X2~X5) : Adjust range of SMART D-ZOOM.
    b. POSITION : Adjust the position
    c. SENSITIVITY (0~100) : Select the level of sensitivity of subject
    d. TIME (0~15) : Adjust the condition time in order to catch the motion.
3-3. DIS (ON/OFF) : Improve the image stability.
3-4. FREEZE (ON/OFF) : On: To freeze still image.
    Off: Images regularly showing
3-5. MIRROR : Functions of mirror-inverted display of the picture:
    (MIRROR: Mirror-inverted display at horizontal axis, V-Flip: Mirror-inverted display at vertical axis, Rotate: Mirror-inverted display at 180° axis, Off: No mirror-inverted display)
3-6. NEG. IMAGE (ON/OFF) : Shows the image with complementary colors
4. IMAGE ADJ : Adjust image in the screen.
4-1. SHARPNESS (0~31) : Sharpness of the picture.
4-2. MONITOR : Adjust the settings value of video appropriate to your monitor.
    a. CRT : Select when used CRT monitor. Adjust details in sub menu.
    b. LCD : Select when used LCD monitor. Adjust details in sub menu.

FUNCTION

4-3. LENS SHADING : Compensates brightness of four lens' corners.
a. LEVEL (0~60) : Adjust level
b. H-CENTER (0~255) : Adjust right and left
c. V-CENTER (0~255) : Adjust up and down.
4-4. DEFECT : Correct the defective pixel automatically when sense up function is enable.
a. SENSE UP (X4~X128) : When defect is on, adjust the ratio of Sense up.
b. DIFF (0~3) : When defect is on, adjust the size of Defect pixel.
c. THRESHOLD (OFF/LOW/MID/HIGH) : When defect is on, Adjust AGC level.
d. START : Active the defect function
5. COMM ADJ : A function of related RS-485 correspondence
5-1. CAM TITLE (ON/OFF) : The ID can be displayed on screen.
5-2. PROTOCOL : RS-485 Protocol set as default, PELCO-D.
5-3. RS485 : Adjust Camera ID, ID Display, baud rate. (2,400~57,600bps)
6. SYNC (INT) : Internal Sync. type, Use DC12V.
7. LANGUAGE: Select the language.
(English, Korean, Japanese, Chinese1, Chinese2, Русский, Français, Español, Italiano,Português, Dutch, German, Polish, Turkish, Hebrew, Arab)
8. EXIT
SAVE : Save & Exit
RESET : Set as a default.
CANCEL : No Save & Exit

▶ Specification

D212H960 / D212HIR960

SPECIFICATION	
VIDEO	
Image Sensor	960H 1/3" COLOR SONY SUPER HAD CCD II
Effective Pixel	976(H) X 494(V) PIXEL(NTSC), 976(H) X 582(V) PIXEL(PAL)
Scanning System	2:1 Interlace
Sync. Type	Internal
Resolution	Color: 700TV-Line, B/W: 800TV-Line
S/N	More than 52dB or More (AGC OFF)
Video Output	1.0 Vp-p(Sync. Negative) Termination 75Ω
Min. Illumination	0.01 Lux(F/1.6), 0.0001Lux(Sense up), 0Lux(25M Range with 24pcs LED, Indoor)
LENS TYPE	
Lens	Vari focal auto iris lens
OPERATIONAL	
On screen display	Yes (16 Languages)
White Balance	ATW(2,500°K~ 9,500°K)/MANUAL/AWB
Shutter Speed	1/60(1/50) ~ 1/100,000SEC sec
Sense up	Auto (Selectable limit 2X~1024X)/OFF
Backlight	BLC / HSBLC /DWDR / OFF
AGC	Low/Middle/High/Off
DNR	Smart 3DNR
Motion Detection	ON / OFF (4 Zone Selectable)
Privacy Masking	ON / OFF (8 Zone Selectable)
Mirror	OFF/MIRROR/FLIP/ROTATE
DAY & NIGHT	ICR (AUTO, COLOR, B/W, EXT)
F- DNR	OFF/MANUAL/AUTO(1~5)
SMART D-ZOOM	ON(X2~X5)/OFF
Digital Zoom	ON(X1~X32) / OFF
DIS	OFF/ON
FREEZE	OFF/ON
IRD-WDR	OFF/ON (1~15)
DEFECT	Sense up (X4~X128), DIFF(0~3), THRESHOLD(1~4)

Troubleshooting

Nothing appears on the screen.

- Check if the camera and monitor's powers are on. (Also, the voltage and polarity.)
- Check if the video-out terminal of the camera and the video-in terminal of the monitor are correctly connected.
- Check if the iris of the lens is open.

The screen seems blurry and darker.

- Adjust Contrast and Bright level in the menu.
- Check the setting of Image adjust in the menu.
- Check if there is any dust or scratches on the camera window

The Image focus is not correct.

- Adjust the camera lens either far or near to make focus.
- Check the camera window for any finger prints or dusts found.
- Please clean off dust and any other debris on the window.

Motion detection function does not operate.

- Check if the MOTION DET setting is properly in the menu.
- Check the setting of motion detection area.

The image does not seem to be shown correctly.

- Check if the video cable is connected correctly.
- Long distance wire runs may require amplification.

Overall, the picture's color does not seem correct.

- Check if the setting of WHITE BALANCE is correct in the menu.

▶ Memo

Memo ◀